IN CLAIMS

1-58 (Cancelled)

59. (New) A method of creating a field electron emission material, comprising the steps of coating a substrate with an ink containing a metal compound or precursor therefor, the compound being selected from the group comprising oxides, silicides, nitrides, silicates, carbides, borides, sulphides and titanates; and curing the ink in such conditions as to grow whiskers of the metal compound at locations on said substrate, thereby to create a plurality of emission sites at said locations.

60. (New) A method according to claim 59, wherein said metal compound or precursor therefor is in the form of particles.

61. (New) A method according to claim 59, wherein said curing step includes heating said ink.

62. (New) A method according to claim 61, wherein said curing step includes heating said ink to a temperature in the range 100 to 1000°C.

63. (New) A method according to claim 61 wherein said curing step includes heating said ink to a temperature in the range 300 to 800°C.

64. (New) A method according to claim 61, wherein said curing step includes heating said ink to a temperature in the range 500 to 550°C.

65. (New) A method according to claim 62, wherein said curing step includes maintaining said temperature for a period in the range 5 to 300 minutes.

66. (New) A method according to claim 62, wherein said curing step includes maintaining said temperature for a period in the range 5 to 60 minutes.

67. (New) A method according to claim 62, wherein said curing step includes maintaining said temperature for a period in the range 10 to 30 minutes.

68. (New) A method according to claim 62, wherein said coating step includes printing said ink directly or indirectly onto said substrate.

69. (New) A method according to claim 68, wherein said coating step includes printing said ink onto a cathode track on said substrate.

70. (New) A method according to claim 68, wherein said coating step includes printing said ink onto a resistive layer on said substrate.

71. (New) A method according to claim 59, wherein said ink contains an organometallic compound and said metal compound or precursor therefor.

72. (New) A method according to claim 71, wherein said organometallic compound contains one or more metal selected from gold, palladium and platinum.

73. (New) A method according to claim 71, wherein said ink contains 0.01 to 10 wt% of said metal with respect to the metal part of the organometallic compound.

74. (New) A method according to claim 71, wherein said ink contains 0.5 to 5 wt% of said metal with respect to the metal part of the organometallic compound.

75. (New) A method according to claim 71, wherein said ink contains 0.8 to 2.5wt% of said metal with respect to the metal part of the organometallic compound.

76. (New) A method according to claim 59, wherein said metal compound comprises a naphthenate oxide.

77. (New) A method according to claim 59, wherein said ink contains material to create both said emission sites and a layer upon which said emission sites are disposed.

78. (New) A method according to claim 77, wherein said layer provides an electrode.

79. (New) A method according to claim 77, wherein said layer provides a resistive layer to serve as a ballast resistor.

80. (New) A method according to claim 77, wherein said curing step comprises processing the ink under such conditions as to create said layer and said emission sites concurrently.

81. (New) A method according to claim 77, wherein said curing step comprises processing the ink under first conditions such as to create said layer and subsequently under second conditions such as to create said emissions sites on said layer.

82. (New) A method according to claim 59, wherein said curing step is carried out concurrently with a sealing step in which the field electron emission material is sealed within a field electron emission device.

83. (New) A method according to claim 59, wherein said emission sites have an average density of at least 10^2 cm^{-2}.

84. (New) A method according to claim 59, including the step of incorporating an additive to catalyse the formation of said metal compound whiskers.

85. (New) A method according to claim 84, wherein said additive comprises sodium or boron.

86. (New) A method according to claim 59, wherein said metal comprises vanadium.

87. (New) A method according claim 59, wherein said metal compound or precursor therefor is in the form of a sol-gel.

88. A method according to claim 59, wherein the distribution of said sites over the field electron emission material is random.

89. A method according to claim 59, wherein said sites are distributed over the field electron emission material at an average density of at least 10^3 cm^{-2}, 10^4 cm^{-2} or 10^5 cm^{-2}.

90. A method according to claim 59, wherein the distribution of said sites over the field electron emission material is substantially uniform.

91. A method according to claim 90, wherein the distribution of said sites over the field electron emission material has a uniformity such that the density of said sites in any circular area of 1mm diameter does not vary by more than 20% from the average density of distribution of sites for all of the field electron emission material.

92. A method according to claim 59, wherein the distribution of said sites over the field electron emission material when using a circular measurement area of 1 mm in diameter is substantially Binomial or Poisson.

93. A method according to claim 90, wherein the distribution of said sites over the field electron emission material has a uniformity such that there is at least a 50% probability of at least one emitting site being located in any circular area of 4 μm diameter.

94. A method according to claim 90, wherein the distribution of said sites over the field electron emission material has a uniformity such that there is at

least a 50% probability of at least one emitting site being located in any circular area of 10 μm diameter.

95. A field electron emission material that has been created by a method according to claim 59.

96. A field electron emission device comprising a field electron emitter containing a field electron emission material according to claim 95, and means for subjecting said emitter to an electric field in order to cause said emitter to emit electrons.

97. A field electron emission device according to claim 96, comprising a substrate with an array of patches of said field electron emitters, and control electrodes with aligned arrays of apertures, which electrodes are supported above the emitter patches by insulating layers.

98. A field electron emission device according to claim 97, wherein said apertures are in the form of slots.

99. A field electron emission device according to claim 96, comprising a plasma reactor, corona discharge device, silent discharge device, ozoniser, an electron source, electron gun, electron device, x-ray tube, vacuum gauge, gas filled device or ion thruster.

100. A field electron emission device according to according to claim 96, wherein the field electron emitter supplies the total current for operation of the device.

101. A field electron emission device according to according to claim 96, wherein the field electron emitter supplies a starting, triggering or priming current for the device.

102. A field electron emission device according to according to claim 96, comprising a display device.

103. A field electron emission device according to according to claim 96, comprising a lamp.

104. A field electron emission device according to claim 103, wherein said lamp is substantially flat.

105. A field electron emission device according to claim 96, wherein said emitter is connected to an electric driving means via a ballast resistor to limit current.

106. A field electron emission device according to claim 97, wherein a ballast resistor is applied as a resistive pad under each said emitting patch.

107. A field electron emission device according to claim 96, wherein said emitter material and/or a phosphor is/are coated upon one or more one-dimensional array of conductive tracks which are arranged to be addressed by electronic driving means so as to produce a scanning illuminated line.

108. (New) A field electron emission device according to claim 107, including said electronic driving means.

109. (New) A field electron emission device according to claim 96, wherein said field emitter is disposed in an environment which is gaseous, liquid, solid, or a vacuum.

110. (New) A field electron emission device according to claim 96, comprising a cathode which is optically translucent and is so arranged in relation to an anode that electrons emitted from the cathode impinge upon the anode to cause electro-luminescence at the anode, which electro-luminescence is visible through the optically translucent cathode.